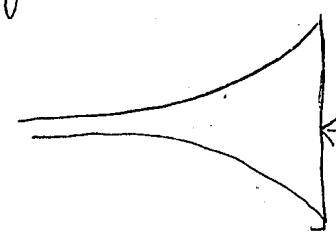
Notebook Series -- Notebooks by Edison
Notebook, N-12-04-15.1

This notebook was used by Edison during the period April-May 1912. It contains notes on phonograph recording experiments, including information on various recorders, horns, and recording arrangements. The entries describe three modifications of the "regular" recorder: a "Deep Recorder," a "Sensitive Recorder," and a "NY Recorder." Included are Edison's evaluations of the quality of recording in the experiments made with each recorder under a variety of conditions. Also included are drawings of modified recording diaphragms. Inserted into the book are several pages of loose notes and drawings by Edison and Alexander Pierman from the period May-August 1912 pertaining to various aspects of experimental recording equipment. The inside front cover is inscribed "Mr. Pierman's Tests." The pages are unnumbered. Approximately 75 pages have been used.

Expts - funnels &
Equivalent — apl 15 1912

A



Deep Records - (1e) bigger chamber
than Reg —
No 1 Made with end Covered

Doubles — bass weaker than
high —
Considerable success but
quality not good

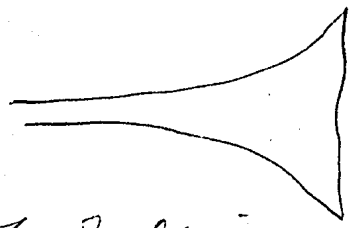
No 2 Open funnel

Louder say 10 to 15% —
but no change in quality
Everything that was bad in No 1
is of course increased in No 2

Think closed funnel only good to
keep ear rubber from slipping
closer to

Same as A.
but with angle notes
No 1 – No Double –
Considerably weaker than
A =

No 2 Open funnel
15% louder
quality not good
Enough –



Deep Rectr

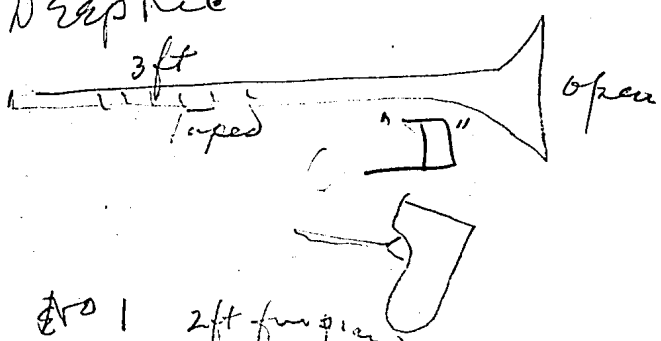
No 1 2 ft

2 4 ft 25% coreaker

3 6 ft 40% coreaker

Single male

Trap Rec

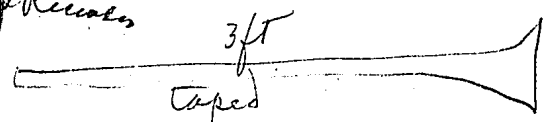


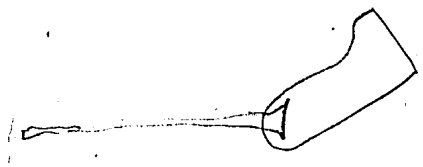
No 1 2ft from Bell
Loudness Like No 3 on Last page
quality infinitely superior —
No 2 — Even with Edge
four Doubles, 50% louder than No 1
quality not as good as No 1 -
should go —

pretty often Uses funnel
as comp and to A. Less

E

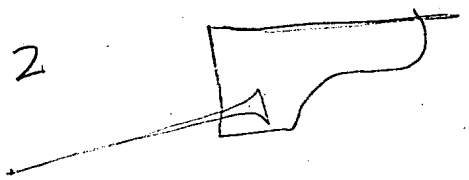
Exp Recorder





#01 - Loud about same as #02 D- quality no better - some doubles

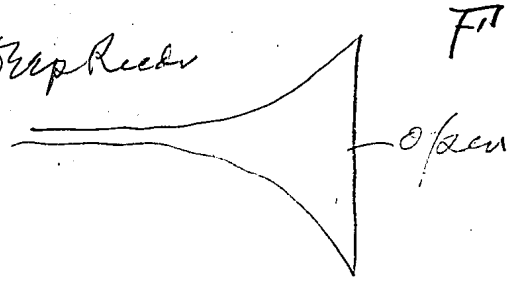
#02



Not much diff
More doubles

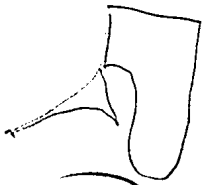
Deep Reeds

F"



No 1

Fair tone, few doubles
Bright strings awful metallic
ring of metal, quality not
good, would open

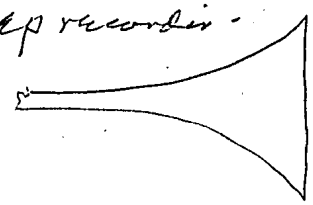


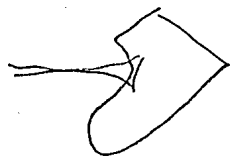
No 2

Double bass not so
good as No 1

G

Dep records -

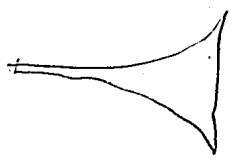




quality not good on this record — rather weak as compared to E record —

No 2 gilt pleated compacts — 1/2 the value but quality 100% better high polish one natural — Something in this

H Deep Reed



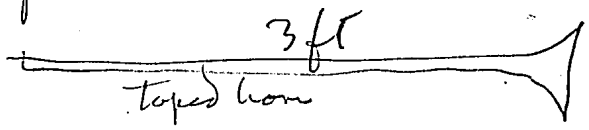
Cover down on Piano
Phono on floor —
horn under ground
horn resting on floor

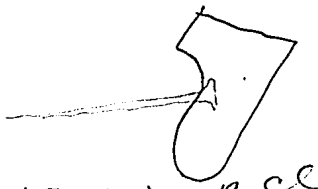
1 St 1/2 Single reeds
Not so good quality as Quilt, Valuable
little greater reed
Best in Octave
Double —

Quality not to be,
Compared with Quilt
Quilt bottles + high reeds
Pedal —

I "

Exp





horn was pressed up close to soundboard – lid of Piano closed tight

Not very loud – Doubles hear thump of hammers very distinct

X-oz

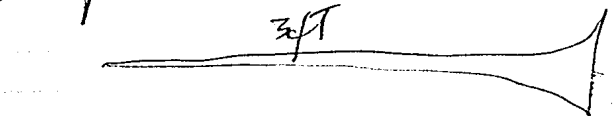
Piano open

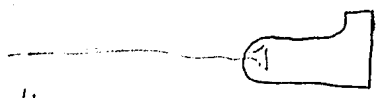
Doubles –

Quality of tone Rotten

Deep Red "J"

3 ft



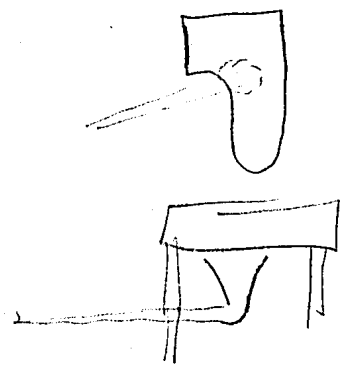


Horn under piano - piano open

Quality for purpose
to I test - not
good enough loud

Very weak Compared
No 1 =

Diaphragm K



Doubles

Quality poor

uneven vacuum def noises

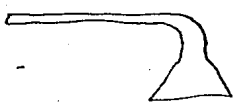
base rig + high

has variable vacuum

Vacuum not great

"L"

Deep Ree

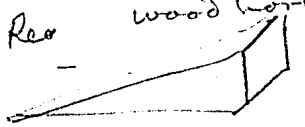


over strings

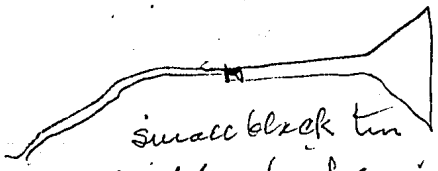
family sound,
bass duly fair — high
dont sound right —
Doubles —

M.

Deep Ree

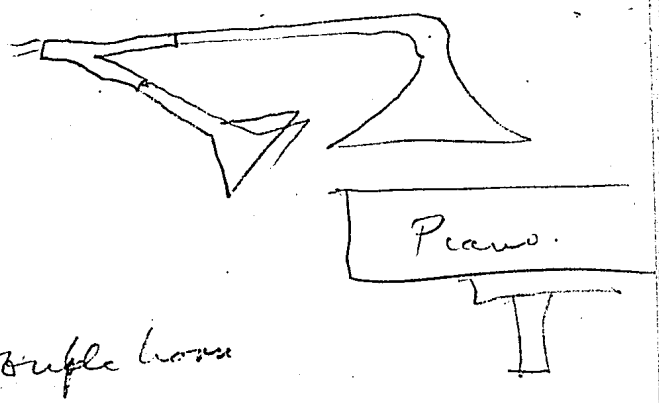


wood horn awful
Weak ng
Quality ng.



smaller black tin horn + 1 ft
rubber tube
3 times louder than M
quality fair —

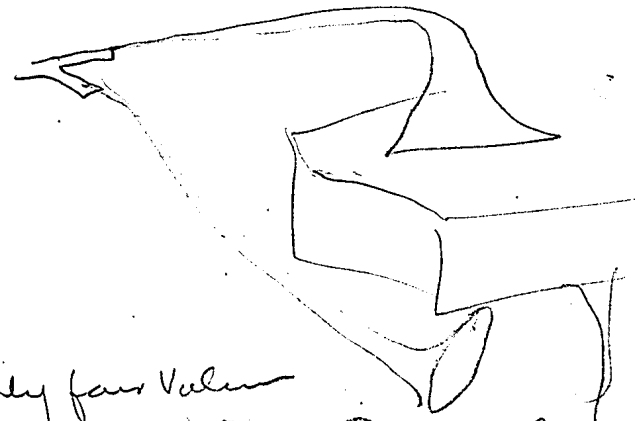
"N"



Double bass

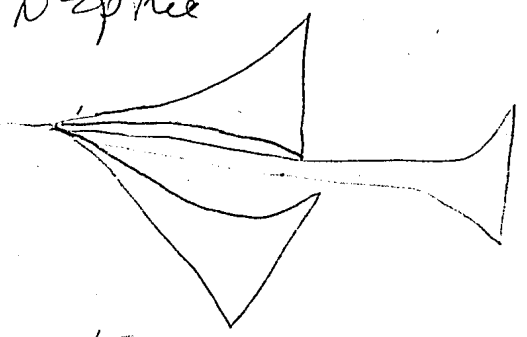
big Doubles - Draft Cut
high note variable volume
Doubles are very noticeable
on certain notes -
Not good -

"O"



only for Value
Base good - Quality
pretty good in this
Evens, up - no doubles
Some high rates uneven
Volume Something in
This

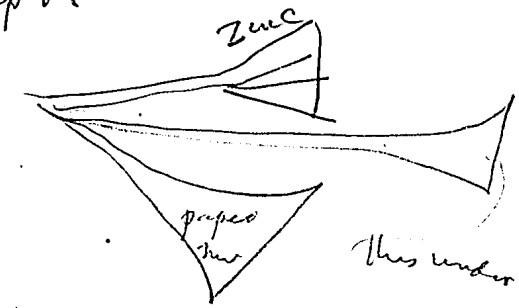
Express "P"



2 top + 1 bottom of Piano
top horn superior each like
long one abt center of Piano
Quality not so
good as a, not so long
as o - uneven Vul on high
One terrible double -
Not promising

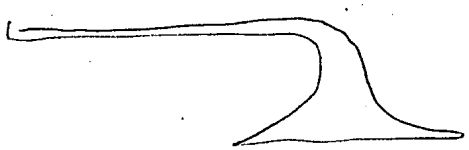
Q

Depth

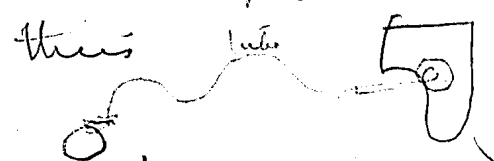


Quality pronunciation like O - Something in it = high sounding to be little unaware in volume - one note grows a double when player relaxes

R.



made from 7 ft 4 in rubber tube



tube in recorder

Quality not good -
weak

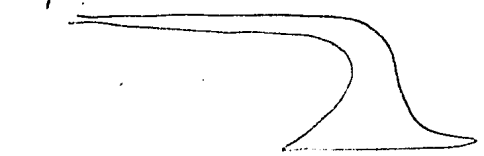
Reg connection to recorder

little louder

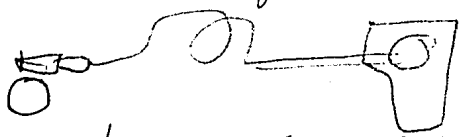
Quality not good -

5

Deep Rec

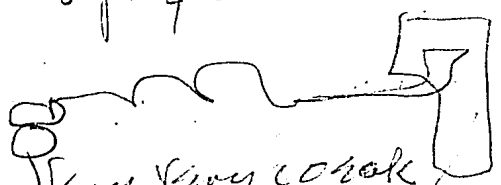


No 1 3 ft $\frac{1}{4}$" tube from down
closets linings



Louder than R=
Quite good - not good

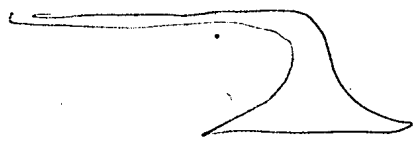
2 - 3 ft $\frac{1}{4}$ tubes
grade



Very very weak,
Similar not good

'T'

Deep Rec



5 ft ½" rubber tube bent horn or trumpet

No 1 Single note - not very loud Not good

No 2 Vent in end of horn —

Double the Volume

Shortened to investigate this —

"U"

D Exp Rec

maximum 5 ft ½" rubber tube best horn at maximum horn down close to strings – no vent – Doubles base better than high –

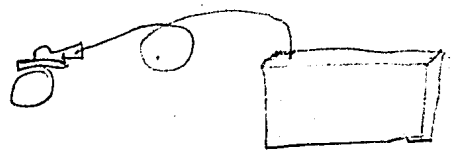
Note slit between T-shirt in location of vent

No 2 vent at junction of tube + horn

10% louder –

+ bad Doubles – unacceptable on high

Deppree "V"



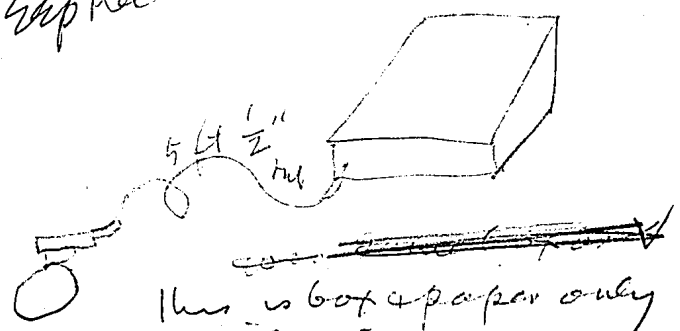
Wood frame with drawing paper stretched both sides drum tight - 2 spaced 1 inch apart 1/2" rubber tube 5 ft long

Probably Not good uneven height - weak

No 2

Same as No 1

Drop Rec W

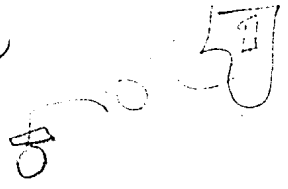


This is box 4 paper only one side -

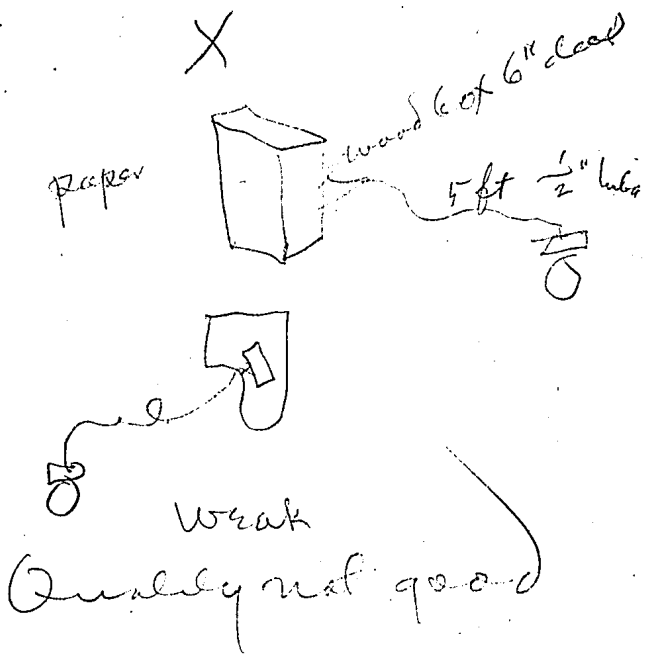
Doubles No 1 -

Weak - 4 ply at bottom to double - Quality proof

No 2

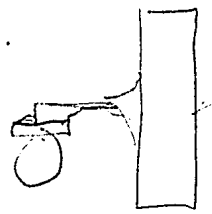


Doubles - abt Same as No 1


X
wood 6 or 6" dead
paper
4 ft ½" tube
weak
Quality not good

'Y'

2X2ft X 6" deep



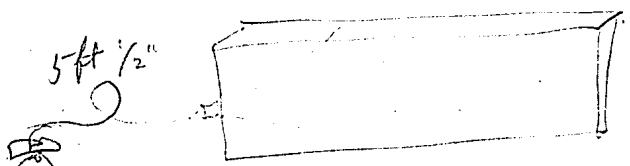
proper drawing paper

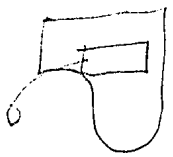
Made with Piano close
as possible

Weak -

Quality not
good -
not necessary

11 Z Box 3ft X 13 in X 3 inch

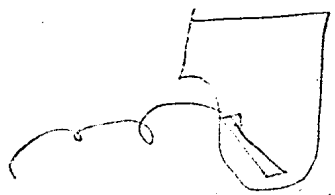




KOI —

Very Very weak Quality

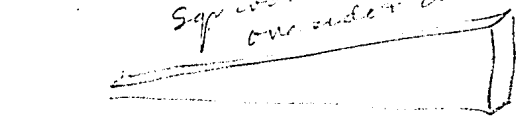
good

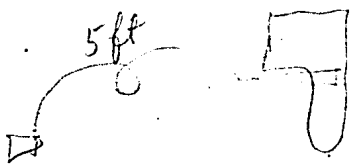


Aboutsame —

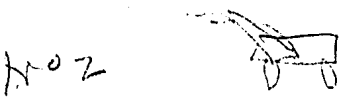
AA

Sq wood from Bumper on one under End





Very Very weak
Quality of wire



No 2

Quality Not good
Double
~~Fine~~ weak

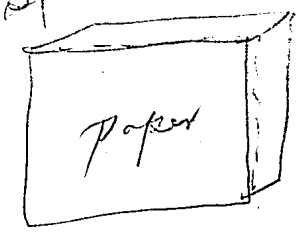
BB

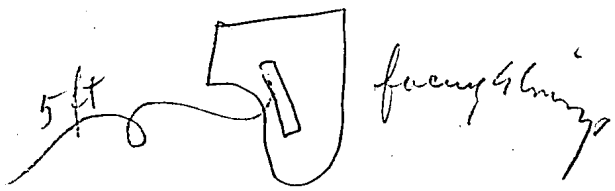
1 1/2" plank 16 x 15"

3/5 bending around

Solder to form

Optional





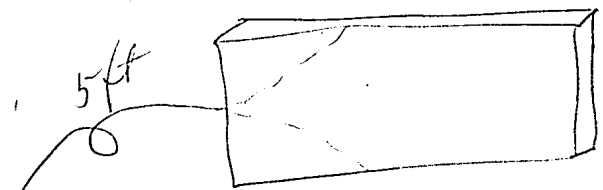
Weak Quadpoor

8" wide like piano

Close as possible

Not glued

CC



1/8" tube piano close as possible

Weak — Quality not good

DD

Dep Rec

6 ft of reg horn connection tubing Corked tight at one end + laying over frame of Reard just above strings

1st single.
2nd pt Adams

Cant hear it

EE

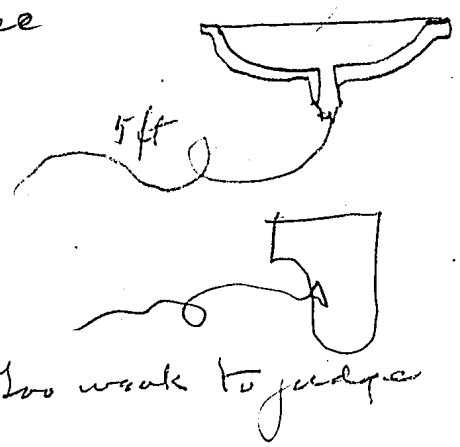
No 1 16ft horn Tubing
Corked at End
Can hear it & quality appears fair

No 2 open Cork out
Louder - Quality not
good —

FF

paper

Stephee

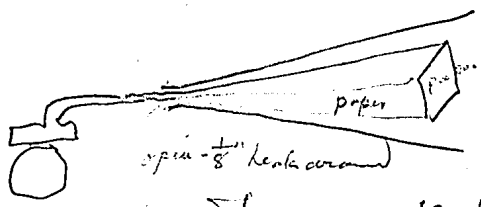


Too weak to judge

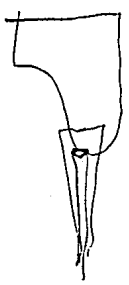
#2 - short tube 6" —
piano close as possible —
too weak to judge

GG

Diaphra



wood horn made with paper on one side & Find



family loud, base good high not so good - Quality four no double

HH,

Senator Ree
7/8 X 002

Double horn as in GG =

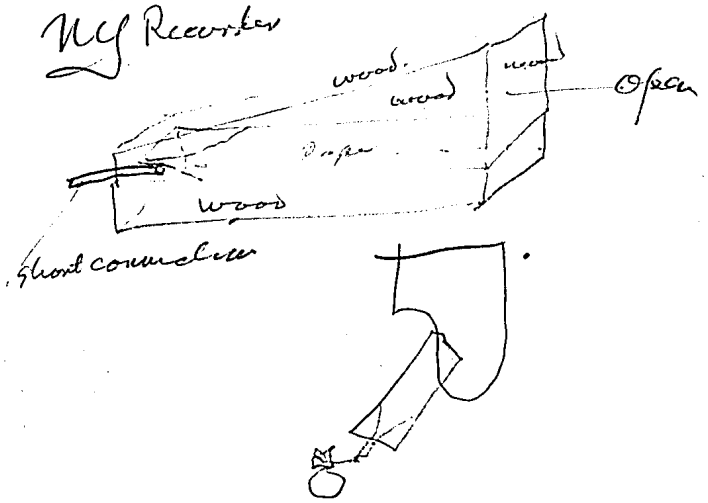
full doubles - wheeze
Bass good - no doubles as
Cased —

Loud (Very)

Dup of above with NY Recording
70% of loudness of above no
Doubles or wheeze - Quality
good — This seems to show that
Mfg's arm is not held right on Senator
Ree & Graphic unable to hold it & the diags
= + makes wheezes + doubles

"I.1"

NG Recorder

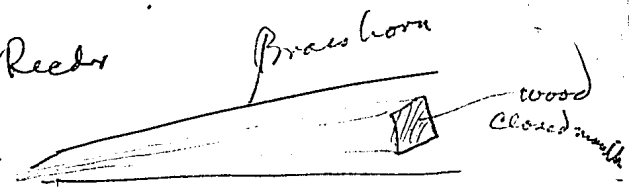


Weak — Quality change
Metallic twang of strings —

Dupe of above with
Sensitive Reeds =
Twice as loud —
Quality change — not good

J. J.

My Reeds



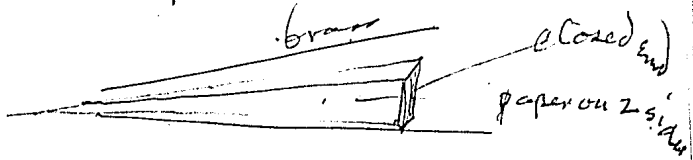
Paper over all of it

Tried several positions
(Thru the beat.

Not very loud Quality
good - no doubles

Very promising

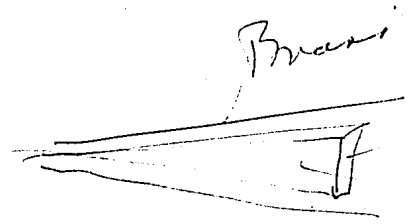
KK



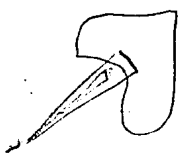
Seventies Rudy

Pretty fair quality no
double or reflections -
not very loud

Dup My Recorder
Quality fair —
1/2 Volume of above



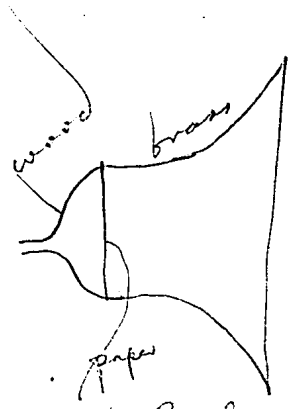
My Reeds



Quality Excellent
not very loud - even Vals

Dup with Sensitive Reeds
Some volume - good tone
Quality of Vals volume
good - Even - Fairly loud

Pronunciamento

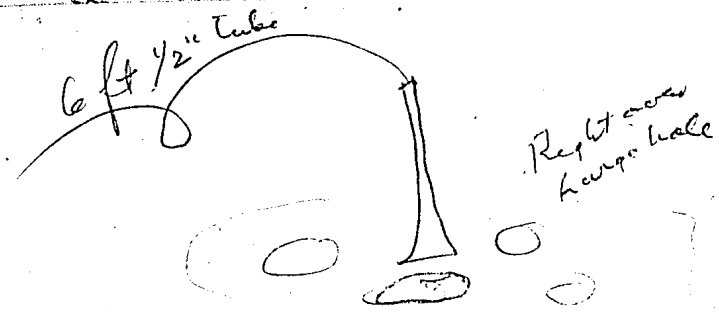


Sensdwr Reader

UQ tweaks notes around – Curious

Dup –
UQ Reader

Wreck – no good

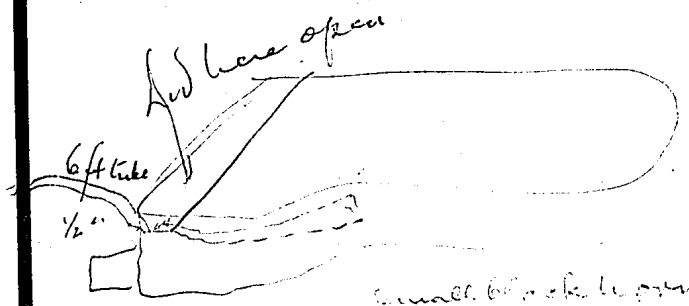


1 My Reading
Tendency to wheeze, family
loud + only scale reading

2 Deep Reading
not quite so loud as I don't
usually as much tendency to
wheeze

3 Emotion Reading
Very loud — several big
wheezes —

Deep is supposedly best
for getting to wheeze



small bit of tube to open

top down hows over strings + under lap

No 1 Sensible
Very loud, few slight wheezes seems good for the big Valves

2 Big Reeds
3/4 of loudness of No 1 inclining to wheeze

3 Deep
only slight inclining to wheeze in one place not quite so loud as No 2

"LL"

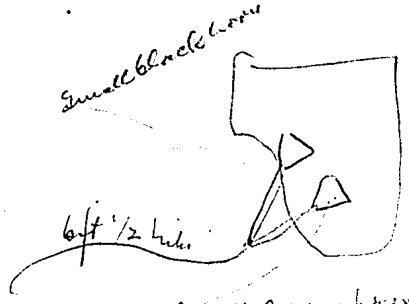
Dup of last page
but all lids down

No 1 Drop Reeds
not so much sweet
wheeze a little —

2 Ivy Reeds
Very little sweet
big wheeze one note

3 Sensible R
Very little sweet — loud
& big wheeze

"MM"

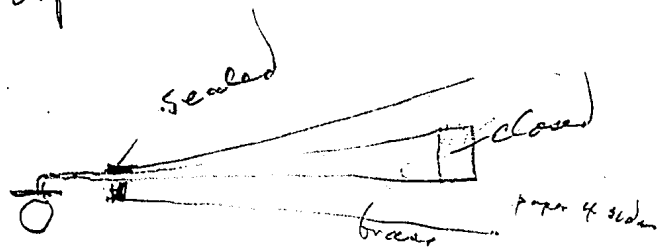


My Reds — Horn closer to clamps

~~Treble~~ Not very loud Quality pretty fair — no doubles or cobwebs — long tube Evenly Coils of horn Volume Considerable

~~Bass~~ No 2 Sen Reeds
No wheeze on scale
Fairly loud on tune
Would not greatly show tendency to cobwebs

Apl 20 —



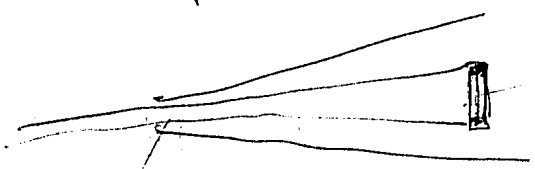
NG Reeds

Base fine - mud vacuum mud/g
high not very good to bassey
Gent quickly good, rich, +
reduced —

Sendiers Reeds Wheyers
Some nibbs + of Chimes
on scale Outside
Wheyers good —
Lords —

Dip Reeds - more even
than others 1/2 loudness
of Sew & lower than NG —
NG. 62nd Tuesday

April 22



Sensitive Ree

Loud - Coarse quality
high has many doubles
squeaky colors
Quickly fair

Deep Reeds | high not good
1/2 Volume of
Sen Reeds

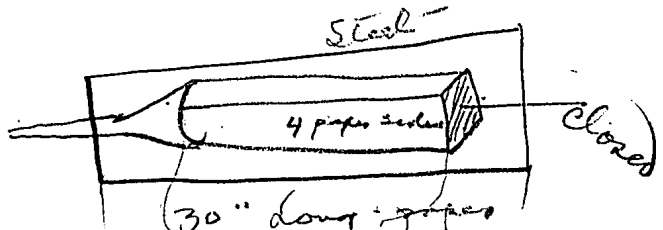
Ny Reeds
Softer than Deep -
Quality not so bad as deep
but far high not
so brilliant

My Recorder

Same as page back only
Small end outside funnel
Closed on small funnel
1 week, Quality NG

Dept recorder
Weak - ~~Less~~ volume
Quality slightly better
but NG

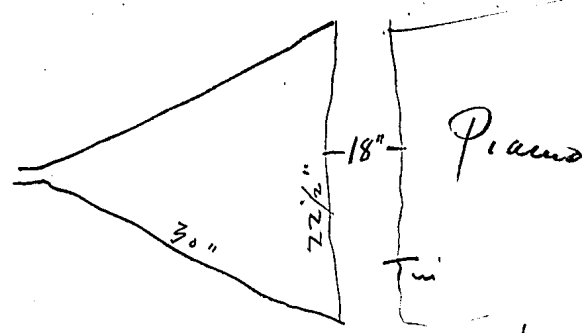
Rundown Reeds
Forward coherence
Quality four of whose
a doubles were out
Quality would be
good



Wy Reeds
Little weak, but
quality pretty good -

Deep Reeds -
Not so good as Wy

Gustave Reed
Wheezy Quality
family [illegible]
[illegible]



Big wrong angle horn to test before we put on the 2nd & Cornet horn

My Reeds Fairly Even
Scale only
no Double

Deep Reed
about same value - not so even
scale only
no double
3 note slur & whoops

Bassoon K

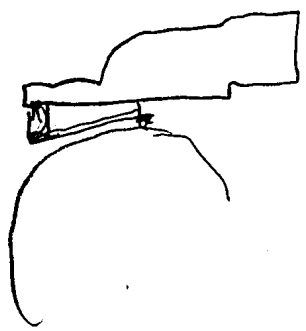
Lungs Val no coherence until high notes — very labile
difficult on any — not much

Ditto as on previous page
only dif is brown right at
Edge of Penumbra

MyRe
No boundary - not
even as bold

Diego -
No boundary

Love always for
Ann R

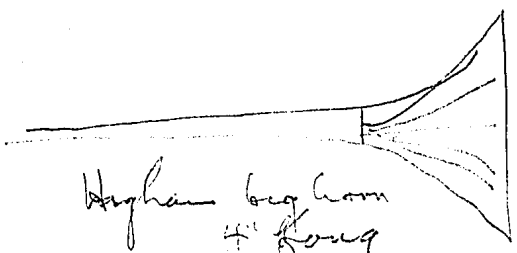


.002
dia

Same horn as previous
2 pages — Recorded
negative here (1E)
below Center of
Cutting Knife

Thinks there more
Even than on 2 pages
previous

Test in Tent -



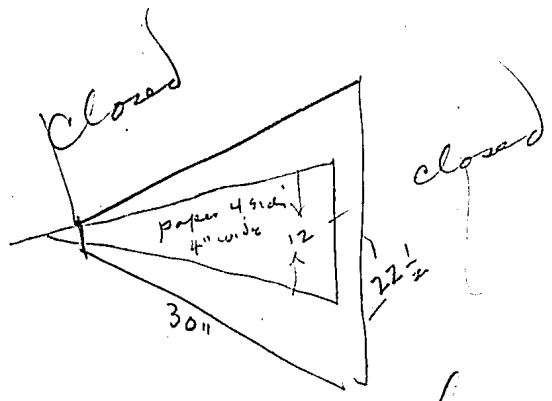
Hughes bug horn
4" long

Sensitive Reeds - Weber Upright -

2 ½ ft from back of Piano

fine bass - terribly pumped out, with this - Wheeze - double & high notes.

My Reeds - not so loud or so much wheeze - fair quality bass good -



Very wide angle

Russian Reed

Poor - not very loud

Very Cohesy all thru

Wy reed Rotten Quality

Ohm - Douglas

Not very loud Mg

Tent Expt

Block paper mache funnel 3½ ft from funnel —

Sen Reeds nearly perfect scarcely any cohesion — few doubles if Alles had been taken 5 ft away it would be OK — Loud unnecessary Loud —

Wf Reeds — good quality only one with Cobol ~~Wh~~ Why a Cobol occurs always ~~a~~ Cobby in Reeds ~~of~~ & sometimes —

Tent Records

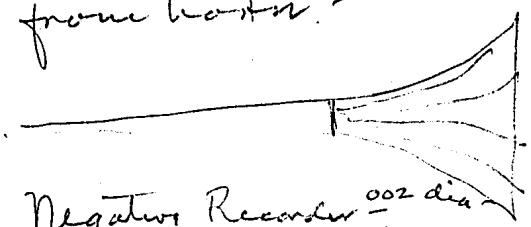
small Tin horn
5 ft from Pickup

Sen Reader — plenty
loud Enough — can be
50% less Volume + be
OK = quality not
as good as paper record
horn — has the 1 note that always plays
Think want Lead weight
to weight down records

My Reader Considerable
Scratch = quality fair
+ Loud Enough —
There is something in
funnel as paper record better
Thinner Shaggs + doubles
+ makes Shaggs + doubles
than this although much louder

Tent—

So far Tent makes a
considerable difference
when any distance
from heater.

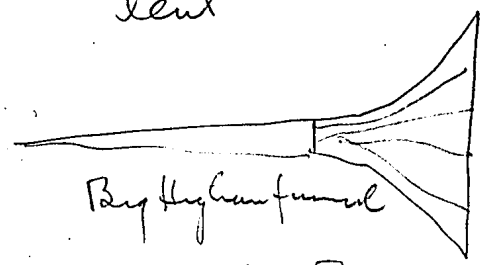


Negative Recorder — .002 dia
Knife lever in tension, I guess
he means

4 ft 6-inch reg Piano —

Not very loud - but loud
enough — Don't seem to
be any improvement over
lower Frequencies using
several doubles & 2 choke coils
(Inductors)

tent



By Hyland Amund

Senders Receiver

5 ft away

Very loud - reversed
doubles & voices
Quality fine perfect
Reads of words &
doubles out

Base to fine no doubles
or words but reverse &
overtones, needs Body jumped out

10 ft away not quite
as loud 70% - very few
words & doubles
Quality fine —
jumped out one place only

Test
Continued

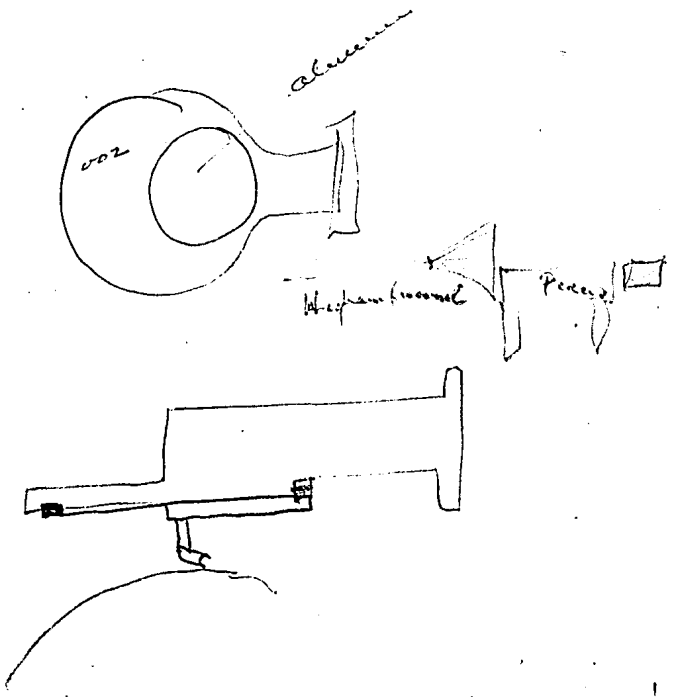
Some bad wheezes on high
2 of them

15 ft away

only a trace of adventitious sounds
in the male – Female good
Think with good player
this Recording a person
15 ft away would be
almost that of a stethoscope

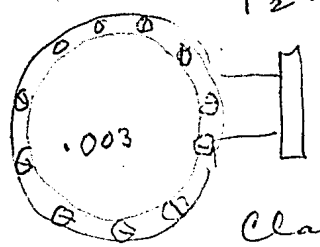
Not pumped out

Wheezes and crackles
according to this in
Test is due to
pump out or failure
if Reader to track –
hence 15 @ 18 ft with
Resolution Threshold in test is OK

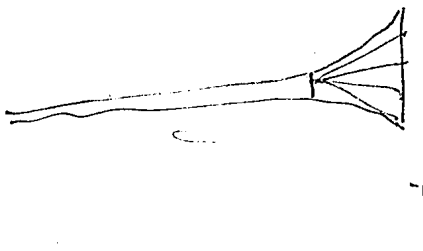


The quality of this is fairly
mellow — The high is not
whistle like but not mellow —
like bass all way thru
pretty good & fairly even
& even bass way thru —
Very pleasing

May 9 1912



Clamped around Edge brass ring 3/32 rabbet working on already Mica only



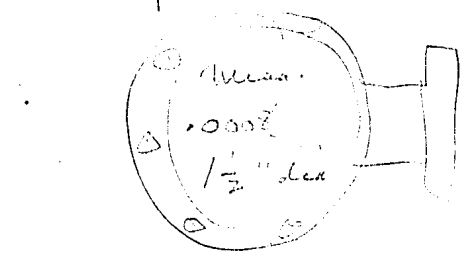
Scale as graded on original Scarcely any sound at all, silent beat Ever heard, hear it even in very high water Volume good — No doubles or whispers

Apparently, Rubber ring is plenty for a load point —

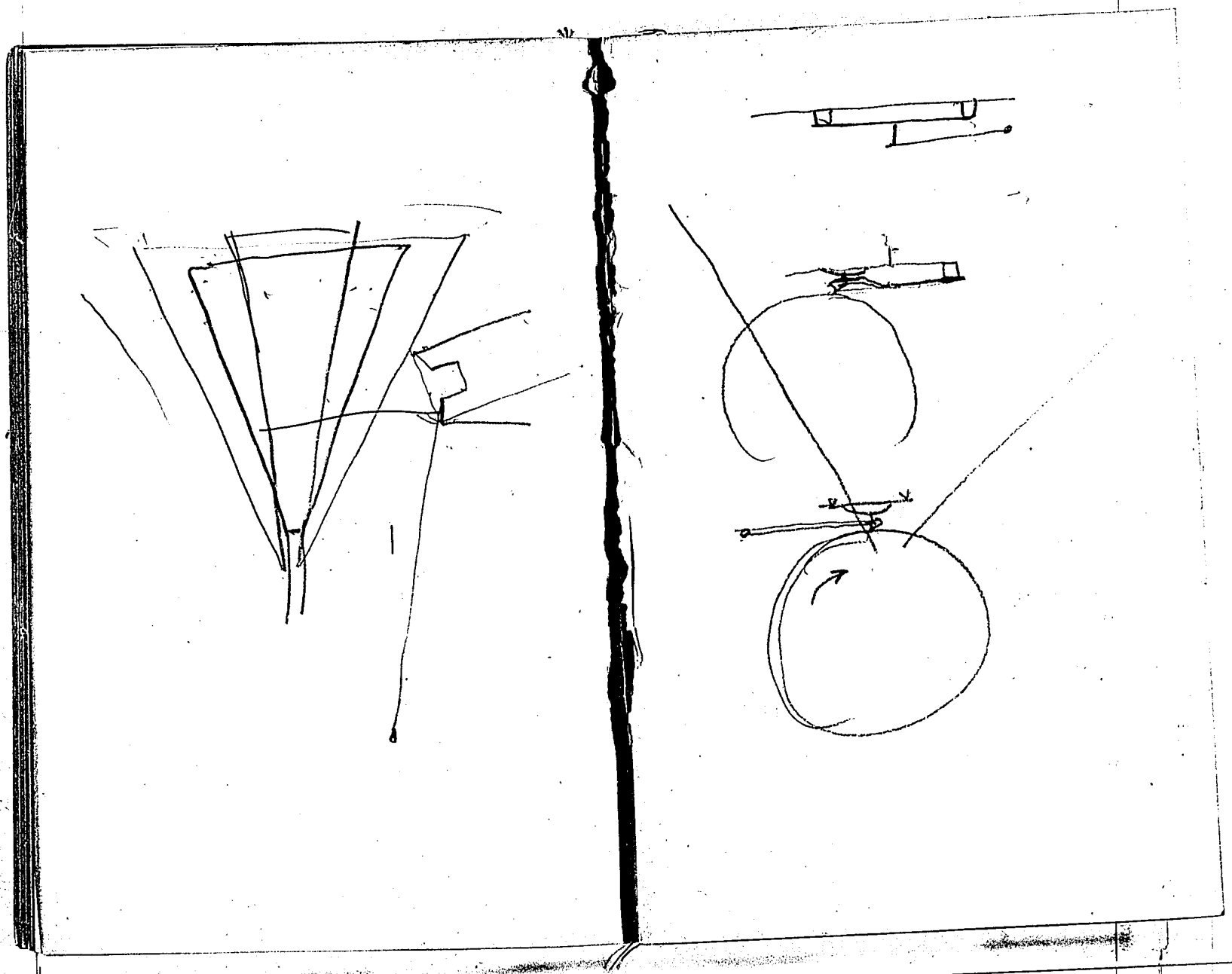
The lens is not good as not sufficient elasticity to give full amplitude to the base waves

probably wants .002 Mica

May 14 1912

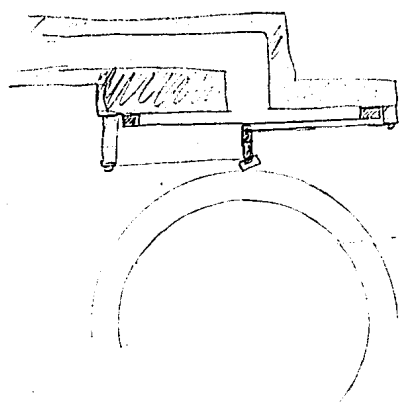


Very loud very good sound -
accompanying cuts double
size. Took off less than
1/4 inch of horn at
terminal and got best results
Edges

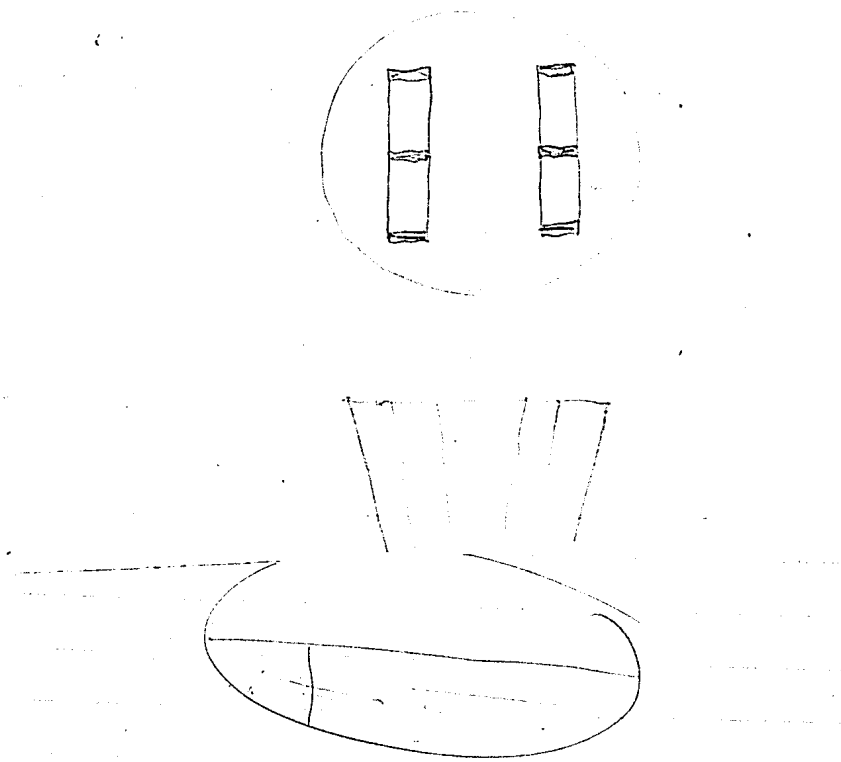


[ITEMS(S) FOUND IN BOOK]

May 1 -12



[ITEMS(S) FOUND IN BOOK]



[ITEMS(S) FOUND IN BOOK]

July 20-12

Mr Grimm

Mr Edison wants moulds made from this two experimental records, and samples of black records from there, as soon as possible

Must have these subs—
Master dies so Phelps
Can make them—

Thomas

[ITEMS(S) FOUND IN BOOK]

Virginia Standard Spruce 100 - #1	Bolting cloth Nylon #2	Bolting cloth Nylon #3	Bolting cloth Nylon #4	Bolting cloth Nylon #5	Bolting cloth Nylon .001" #6
Plane 10 feet 100	90	100	95	95	110
Chimney 14 ft 100	95	90	110	115	115
Talk 7 feet 100	95	95	90	85	100
Talk 14 ft 100	90	100	90	90	110
Oil Still 5 feet 100	Rotten	40	30	Rotten	85

Test in Tent
Aug 24 / 1912
(1912)

[ITEMS(S) FOUND IN BOOK]

Recorder number ↓

H	1	Bolting cloth, ~~one~~ coat Collodion
	2	Mica .0008 thick
	3	" .0005 "
	4	Bolting cloth soaked in adhesive tape, peeled off, expose to sun, changed to ~~Cellulose .0055~~ coat
✓	5	Mica .00015 OK. in test
	6	~~Celluloid .006 Film~~ coat Collodion
✓	7	~~Kodak film Paper .0055~~ Bolting cloth, Film dope 3 days coat OK. in test
✓	8	~~Paper .0033~~ Bolting cloth, Film dope 3 days coat OK. in test
	9	Bolting cloth, one coat Collodion
✓	10	Bolting cloth + Film dope OK. in test "
✓	11	Bolting cloth + Film dope OK. in test but to slate ~~3~~ " "
	12	" " 4 " "

[ITEMS(S) FOUND IN BOOK]

Test #1

No 1 - Cant understand but its loud
Hear music Loudness 100

No 2 Cal S, about same loud
but heard several words -
Loudness 104

No 3 CS - dont understand -
Loudness 90.

No 4 CS - Heard a little 3 words
Loudness 86

No 5 - CS. - heard considerable -
Loudness 110

No 6 CS Several, heard 2 or 3 words
Loudness 105

[ITEMS(S) FOUND IN BOOK]

Test #1

No 7 = heard 2 or 3 words
Loudness 90

No 8 = 3 or 4 words
Loudness 85

No 9 = heard 3/4 of this pretty
fast — heard good ah also
Loudness 110

No 10 — Considerable heard
but I am getting out to the words 108
Loudness 108

No 11 = only few words
Loudness 100

No 12 Heard Considerable
Loudness 100

[ITEMS(S) FOUND IN BOOK]

Test #2

No 1 Several words Loudness 100

No 2 All of it — 110

No 3. Got none Loudness 95

No 4 2 words Loudness 85

No 5 few words. Loudness 105

No 6 - 3/4 of it " 105

No 7 3/4 105

No 8 1/2 100

No 9 3/4 100

No 10 1/2 85

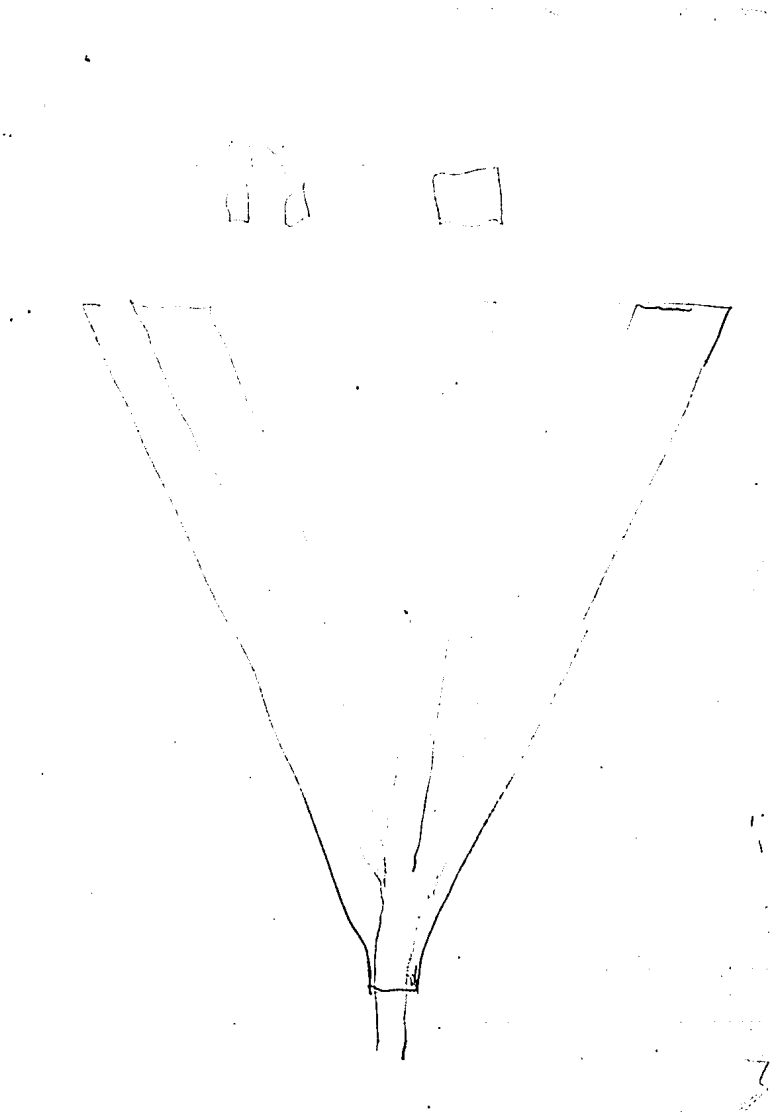
No 11 1/2 95

No 12 1/2 100

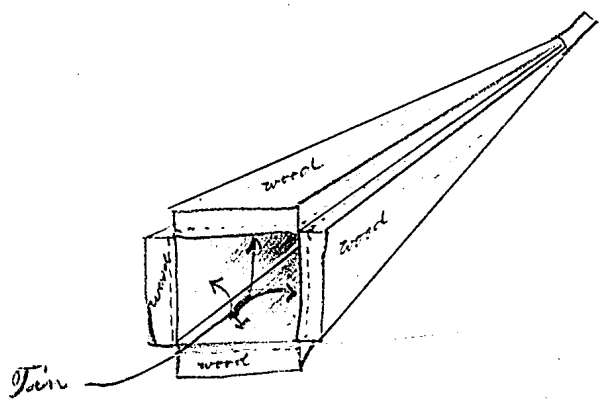
[ITEMS(S) FOUND IN BOOK]

May 3-12
ATP

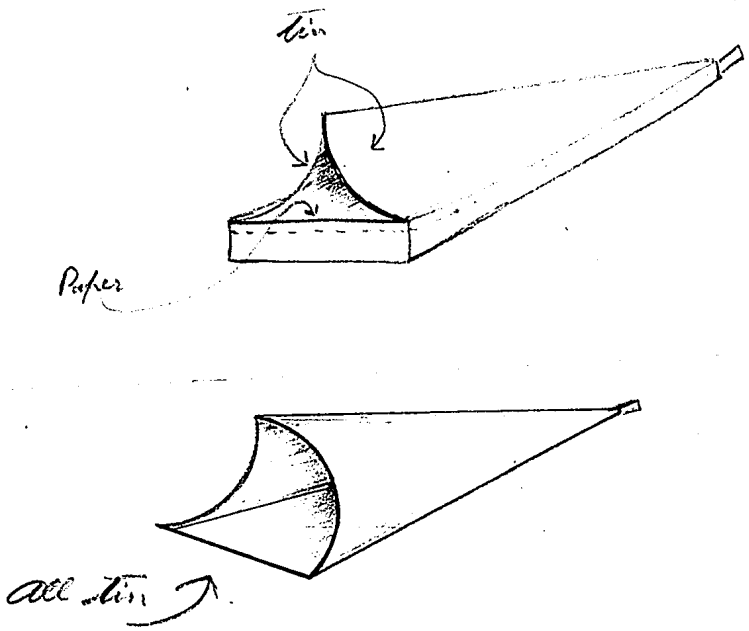
[ITEMS(S) FOUND IN BOOK]



[ITEMS(S) FOUND IN BOOK]



[ITEMS(S) FOUND IN BOOK]



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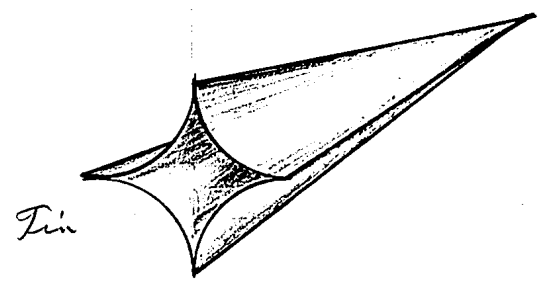
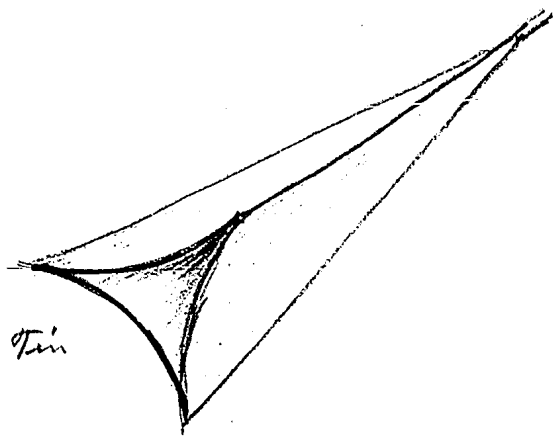
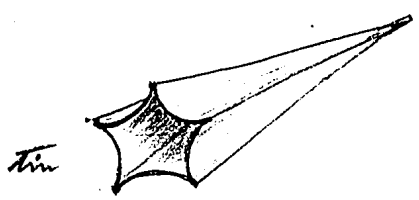
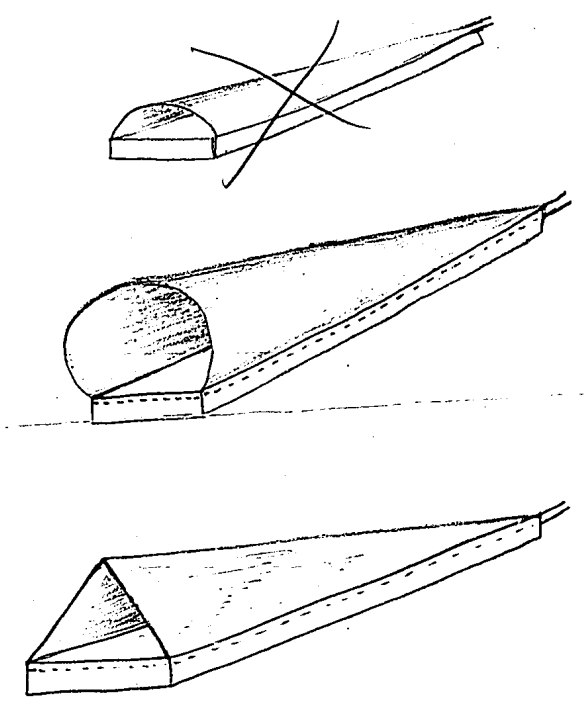






[ITEMS(S) FOUND IN BOOK]

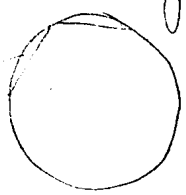


[ITEMS(S) FOUND IN BOOK]

Pierman

Guinea pig skin, wet preserved
Nickel sheet 1/4/1000 ± 3/4 1/1000 plated
Aluminum " " " several rolled
Glass – Dunwiddie can grind to 1/1000 from 005
Ivory celluloid heat stretched various thickness
Collodion " "
Gelatin — I have some
Shelled Japanese paper
Shelled Silk thin gauze like –
Silk coated with Collodium
Dalley Can blow glass centers

Cut out



[ITEMS(S) FOUND IN BOOK]

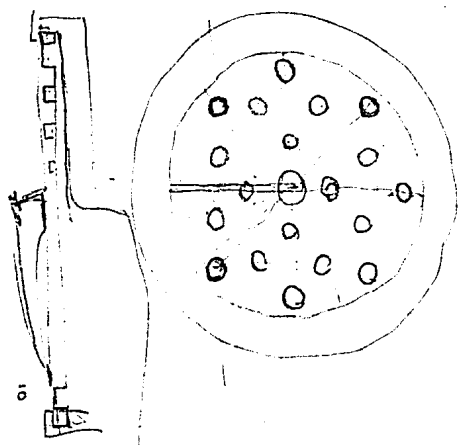
Edge of one horn to the other
12 ft -

1st use Reg horns as now —
put on Carl Stewart then the Ven Trio
+play each — 20 seconds. — Try all
the recorders — 2 Expts 1 Recon
~~2nd [illegible]~~

[ITEMS(S) FOUND IN BOOK]

160
4
640
26
3840
1280
16640

52
6.00
312.00



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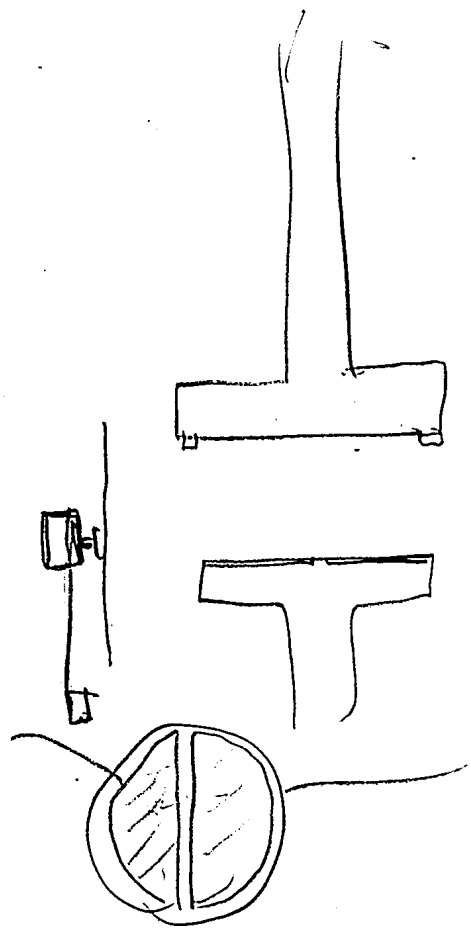
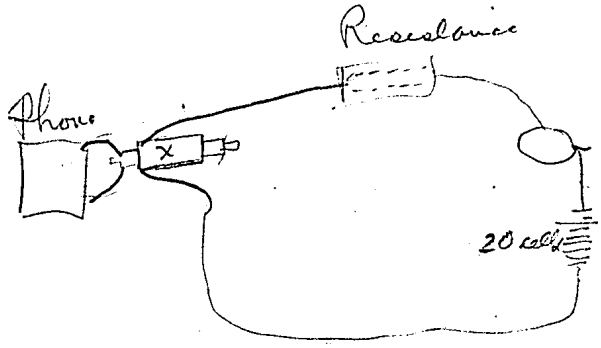
[ITEMS(S) FOUND IN BOOK]

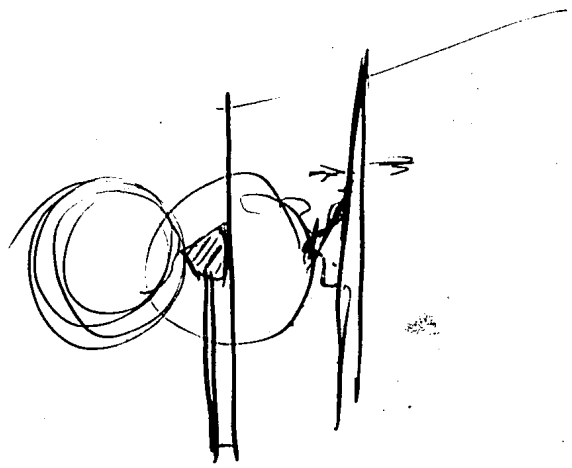


[ITEMS(S) FOUND IN BOOK]

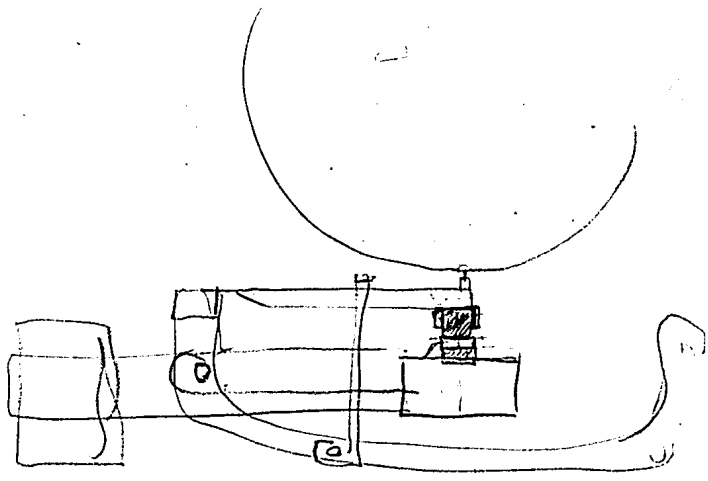
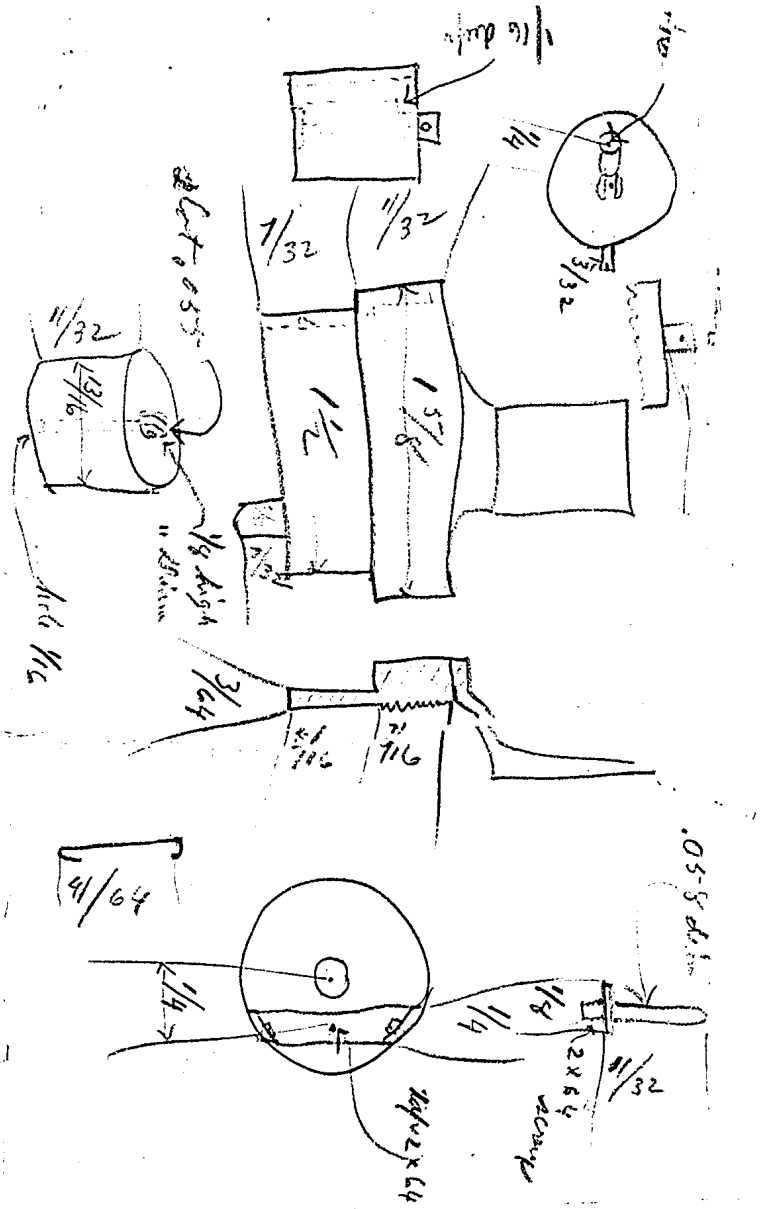


X use a coil. But put the low resistance or primary Coil to the phone wire & the high resistance on the line — add 20 cells & put in 6000 ohms

[ITEMS(S) FOUND IN BOOK]



[ITEMS(S) FOUND IN BOOK]



[ITEMS(S) FOUND IN BOOK]